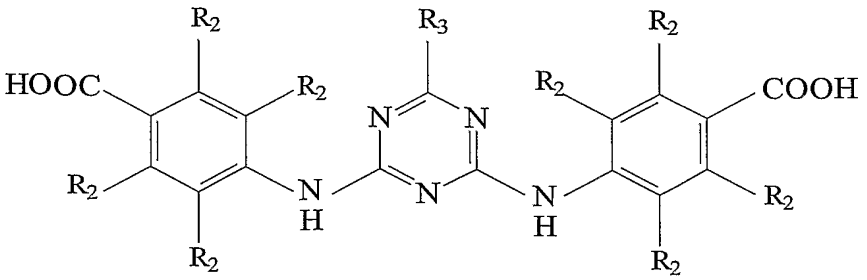
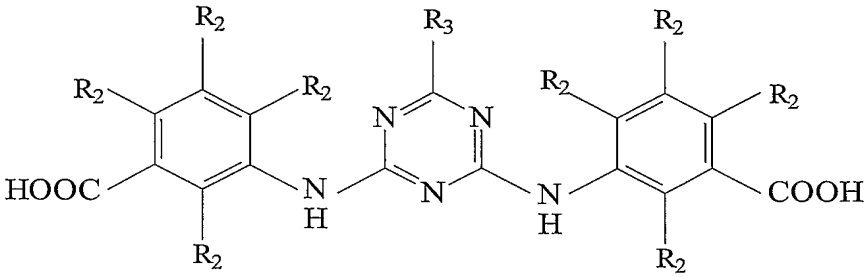
We claim:

1. A composition comprising: a matrix comprising molecules that are non-covalently crosslinked by multi-valent cations, wherein the molecules that are non-covalently crosslinked are non-polymeric, have more than one carboxy functional group, and have at least partial aromatic or heteroaromatic character.
2. A composition for encapsulation and controlled release comprising a composition according to claim 1 wherein the molecules that are non-covalently crosslinked are host molecules and the composition is characterized in that a guest molecule may be encapsulated within the matrix and subsequently released.
3. A composition for encapsulation and controlled release according to claim 2, wherein the host molecule is zwitterionic.
4. A composition for encapsulation and controlled release according to claim 2, further comprising a guest molecule.
5. A composition for encapsulation and controlled release according to claim 4, wherein the guest molecule is a drug.
6. A composition according to claim 1, wherein the molecules that are non-covalently crosslinked are capable of forming either a chromonic M or N phase in aqueous solution before they are in the presence of multi-valent cations.
7. A composition according to claim 1, wherein the molecules that are non-covalently crosslinked have at least partial aromatic character.
8. A composition according to claim 1, wherein at least one of the carboxy groups of the molecules that are non-covalently crosslinked are directly attached to an aromatic or heteroaromatic functional group.
9. A composition according to claim 1, wherein a majority of the multi-valent cations are divalent.
10. A composition according to claim 1, wherein the multi-valent cations are selected from the group consisting of calcium, magnesium, zinc, aluminum, and iron.
11. A composition according to claim 1, wherein the molecules that are non-covalently crosslinked comprise:



or



wherein each R_2 is independently selected from any electron donating group, electron withdrawing group and electron neutral group; and

R_3 is selected from the group consisting of substituted and unsubstituted heteroaromatic and heterocyclic rings linked to the triazine group through a nitrogen atom within the ring of R_3,

and proton tautomers and salts thereof.

12. A composition according to claim 11, wherein each R_2 is independently selected from the group consisting of hydrogen, an unsubstituted alkyl group, or an alkyl group substituted with a hydroxy, ether, ester, sulfonate, or halide functional group.

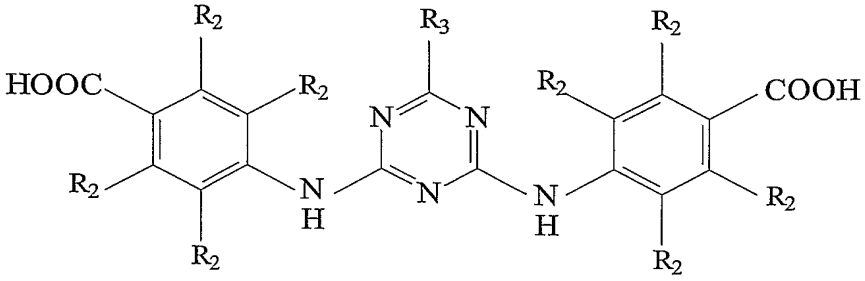
13. A composition according to claim 12, wherein R_3 comprises a heteroaromatic ring derived from the group consisting of pyridine, pyridazine, pyrimidine, pyrazine, imidazole, oxazole, isoxazole, thiazole, oxadiazole, thiadiazole, pyrazole, triazole, triazine, quinoline, and isoquinoline.

14. A composition according to claim 12, wherein R_3 comprises a heteroaromatic ring derived from pyridine or imidazole.

15. A composition according to claim 12, wherein R_3 is selected from the group consisting of pyridinium-1-yl , 4-(dimethylamino)pyridium-1-yl, 3-methylimidazolium-1-yl, 4-(pyrrolidin-1-yl)pyridium-1-yl, 4-isopropylpyridinium-1-yl, 4-[(2-hydroxyethyl)methylamino]pyridinium-1-yl, 4-(3-hydroxypropyl)pyridinium-1-

yl, 4-methylpyridinium-1-yl, quinolinium-1-yl, 4-*tert*-butylpyridinium-1-yl, and 4-(2-sulfoethyl)pyridinium-1-yl.

16. A composition according to claim 11 wherein the host molecule comprises:



and proton tautomers and salts thereof.

17. A composition according to claim 16, wherein each R_2 is independently selected from the group consisting of hydrogen, an unsubstituted alkyl group, or an alkyl group substituted with a hydroxy, ether, ester, sulfonate, or halide functional group.

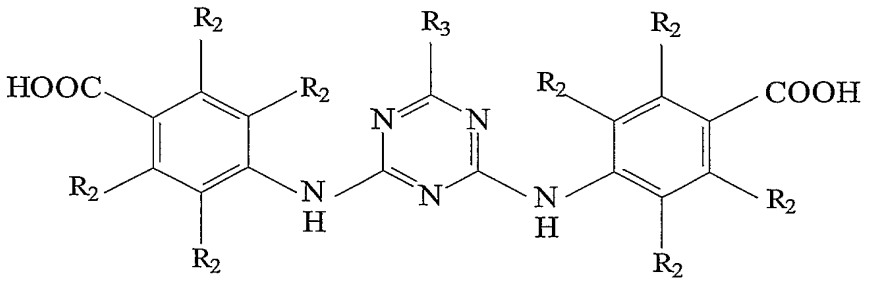
18. A composition according to claim 17, wherein R_3 comprises a heteroaromatic ring derived from the group consisting of pyridine, pyridazine, pyrimidine, pyrazine, imidazole, oxazole, isoxazole, thiazole, oxadiazole, thiadiazole, pyrazole, triazole, triazine, quinoline, and isoquinoline.

19. A composition according to claim 17, wherein R_3 comprises a heteroaromatic ring derived from pyridine or imidazole.

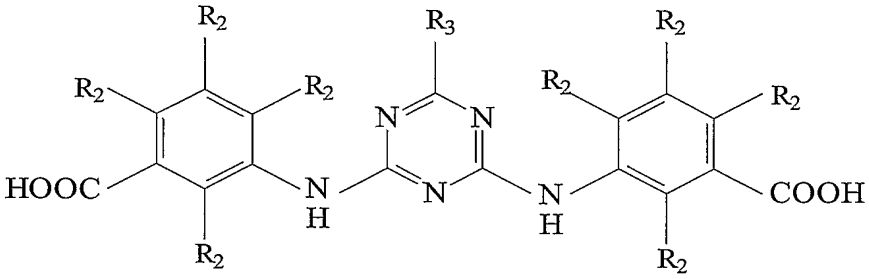
20. A composition according to claim 17, wherein R_3 is selected from the group consisting of pyridinium-1-yl , 4-(dimethylamino)pyridium-1-yl, 3-methylimidazolium-1-yl, 4-(pyrrolidin-1-yl)pyridium-1-yl, 4-isopropylpyridinium-1-yl, 4-[(2-hydroxyethyl)methylamino]pyridinium-1-yl, 4-(3-hydroxypropyl)pyridinium-1-yl, 4-methylpyridinium-1-yl, quinolinium-1-yl, 4-*tert*-butylpyridinium-1-yl, and 4-(2-sulfoethyl)pyridinium-1-yl.

21. A particulate composition comprising particles comprising a water-insoluble matrix comprising a host molecule that is non-covalently crosslinked by multi-valent cations, wherein the host molecule is non-polymeric, has more than one carboxy functional group, and has at least partial aromatic or heteroaromatic character, and the particles are characterized in that a guest molecule may be encapsulated within the matrix and subsequently released.

22. A particulate composition according to claim 21, wherein the particles are dissolvable in an aqueous solution of univalent cations.
23. A particulate composition according to claim 21, wherein the particles do not substantially dissolve in a solution with a pH less than about 5.0.
24. A particulate composition according to claim 21, wherein the mass median diameter of the particles is less than 100 μm.
25. A particulate composition according to claim 21, wherein the host molecule is zwitterionic.
26. A particulate composition according to claim 21, wherein the host molecule has two carboxy functional groups.
27. A particulate composition according to claim 21, further comprising a guest molecule.
28. A particulate composition according to claim 27, wherein the guest molecule is a drug.
29. A particulate composition according to claim 21, wherein the host molecule is capable of forming either a chromonic M or N phase in aqueous solution before it is in the presence of multi-valent cations.
30. A particulate composition according to claim 21, wherein the host molecule has at least partial aromatic character.
31. A particulate composition according to claim 21, wherein at least one of the carboxy groups of the host molecule is directly attached to an aromatic or heteroaromatic functional group.
32. A particulate composition according to claim 21, wherein a majority of the multi-valent cations are divalent.
33. A particulate composition according to claim 21, wherein the multi-valent cations are selected from the group consisting of calcium, magnesium, zinc, aluminum, and iron.
34. A particulate composition according to claim 21, wherein the host molecule comprises:



or



wherein each R_2 is independently selected from any electron donating group, electron withdrawing group and electron neutral group; and

R_3 is selected from the group consisting of substituted and unsubstituted heteroaromatic and heterocyclic rings linked to the triazine group through a nitrogen atom within the ring of R_3,

and proton tautomers and salts thereof.

35. A particulate composition according to claim 34, wherein each R_2 is independently selected from the group consisting of hydrogen, an unsubstituted alkyl group, or an alkyl group substituted with a hydroxy, ether, ester, sulfonate, or halide functional group.

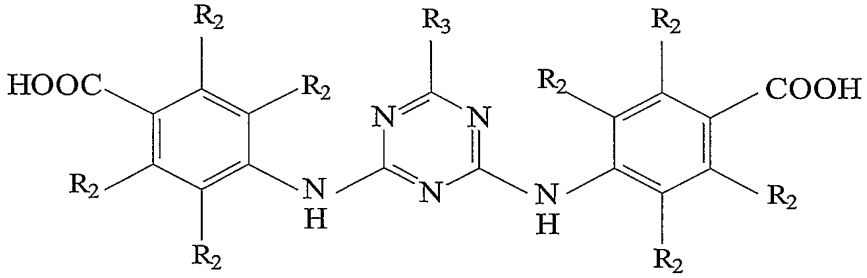
36. A particulate composition according to claim 35, wherein R_3 comprises a heteroaromatic ring derived from the group consisting of pyridine, pyridazine, pyrimidine, pyrazine, imidazole, oxazole, isoxazole, thiazole, oxadiazole, thiadiazole, pyrazole, triazole, triazine, quinoline, and isoquinoline.

37. A particulate composition according to claim 35, wherein R_3 comprises a heteroaromatic ring derived from pyridine or imidazole.

38. A particulate composition according to claim 35, wherein R_3 is selected from the group consisting of pyridinium-1-yl , 4-(dimethylamino)pyridium-1-yl, 3-methylimidazolium-1-yl, 4-(pyrrolidin-1-yl)pyridium-1-yl, 4-isopropylpyridinium-1-yl, 4-[(2-hydroxyethyl)methylamino]pyridinium-1-yl, 4-(3-hydroxypropyl)pyridinium-

1-yl, 4-methylpyridinium-1-yl, quinolinium-1-yl, 4-*tert*-butylpyridinium-1-yl, and 4-(2-sulfoethyl)pyridinium-1-yl.

39. A particulate composition according to claim 34 wherein the host molecule comprises:



and proton tautomers and salts thereof.

40. A particulate composition according to claim 39, wherein each R_2 is independently selected from the group consisting of hydrogen, an unsubstituted alkyl group, or an alkyl group substituted with a hydroxy, ether, ester, sulfonate, or halide functional group.

41. A particulate composition according to claim 40, wherein R_3 comprises a heteroaromatic ring derived from the group consisting of pyridine, pyridazine, pyrimidine, pyrazine, imidazole, oxazole, isoxazole, thiazole, oxadiazole, thiadiazole, pyrazole, triazole, triazine, quinoline, and isoquinoline.

42. A particulate composition according to claim 40, wherein R_3 comprises a heteroaromatic ring derived from pyridine or imidazole.

43. A particulate composition according to claim 40, wherein R_3 is selected from the group consisting of pyridinium-1-yl , 4-(dimethylamino)pyridium-1-yl, 3-methylimidazolium-1-yl, 4-(pyrrolidin-1-yl)pyridium-1-yl, 4-isopropylpyridinium-1-yl, 4-[(2-hydroxyethyl)methylamino]pyridinium-1-yl, 4-(3-hydroxypropyl)pyridinium-1-yl, 4-methylpyridinium-1-yl, quinolinium-1-yl, 4-*tert*-butylpyridinium-1-yl, and 4-(2-sulfoethyl)pyridinium-1-yl.

44. A medicinal suspension formulation comprising a particulate composition according to claim 21 and a liquid.

45. A method for preparing a composition for encapsulation and controlled release comprising:

(a) combining an aqueous solution and an at least partially aromatic or heteroaromatic compound comprising more than one carboxy functional group to form a solution having a chromonic phase; and

(b) combining the solution having a chromonic phase with a solution of multi-valent ions to form a precipitated composition.

46. A method for preparing a composition for encapsulation and controlled release according to claim 45, wherein the precipitated composition further comprises a bioactive compound.

47. A method for drug delivery comprising:

(a) providing a composition comprising a water-insoluble matrix comprising:

(i) a host molecule that is non-covalently crosslinked by multi-valent cations, wherein the host molecule is non-polymeric, has more than one carboxy functional group, and has at least partial aromatic or heteroaromatic character, and

(ii) a drug encapsulated within the matrix;

(b) delivering the composition to an organism such that it comes into contact with univalent cations and releases the encapsulated drug; and

(c) allowing the released drug to remain in contact with a part of the organism for a period of time sufficient to achieve the desired therapeutic effect.

48. A method for drug delivery according to claim 47, wherein the composition is delivered to an animal orally.

49. A method for drug delivery according to claim 48, wherein encapsulated drug is delivered to the intestine.

50. A method for drug delivery according to claim 47, wherein encapsulated drug is delivered to systemic circulation prior to release.

51. A method for drug delivery according to claim 47, wherein the composition is delivered to an animal via inhalation.

52. A method for drug delivery according to claim 47, wherein the composition is delivered to an animal intravenously or intramuscularly.

53. A method of providing a drug delivery composition for encapsulation and controlled release comprising:

(i) administering a crosslinking agent comprising multi-valent cations;

(ii) administering a host molecule agent comprising a non-polymeric host molecule having more than one carboxy functional group and at least partial aromatic or heteroaromatic character; and

(iii) administering a drug;

wherein the crosslinking agent, and the drug form a non-covalently crosslinked, water-insoluble matrix and the drug is encapsulated within the matrix and subsequently released.

54. The method of claim 53, wherein at least one of the ingredients is administered independently of the others and the composition subsequently forms at a desired site for delivery.